

**Notice of Allowability**

Application No.

09/927,517

Applicant(s)

TAKIZAWA, HIDEO

Examiner

Art Unit

Herng-der Day

2128

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment received 9/29/05.
2. ☒ The allowed claim(s) is/are 1,3-6,8-10,16,21 and 25-30, now renumbered as 1-16.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_



**KAMINI SHAH**  
**Supervisory PRIMARY EXAMINER**  
**#02128**

### **DETAILED ACTION**

1. This communication is in response to Applicant's Amendment to Office Action dated July 29, 2005, mailed September 29, 2005.

1-1. Claims 5, 10, 21, and 25 have been amended. Claims 27-30 have been added. Claims 1, 3-6, 8-10, 16, 21, and 25-30 are pending.

1-2. Claims 1, 3-6, 8-10, 16, 21, and 25-30 have been examined and allowed.

### ***Reasons for Allowance***

2. The following is an Examiner's statement of reasons for allowance:

2-1. The closest prior art of record discloses:

(1) A three-dimensional rigid-plastic finite element method to simulate the open pass profile ring rolling of a T-shaped section (Yang et al., "Simulation of T-Section Profile Ring Rolling by the 3-D Rigid-Plastic Finite Element Method").

(2) A method for finite element ring-rolling simulation (Davey et al., "An Efficient Solution Method for Finite Element Ring-Rolling Simulation");

(3) Using rigid-plastic finite element method to analyze plane strain ring rolling (Yang et al., "Rigid-Plastic Finite Element Analysis of Plane Strain Ring Rolling").

2-2. Independent claim 1 is directed at a computer-implemented numerical-simulation method for rotary metal forming as shown in FIG. 1. Although applying finite element method in ring-rolling simulation is obvious as disclosed in the prior art of record, this independent claim identifies the distinct features of setting the velocity boundary conditions including "the velocity

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boundary conditions are set so as to model plastic deformation of said rotary formed body in the circumferential direction” and “wherein in a case where said axis of rotation is displaced with an addition of an increase in diameter of said rotary formed body in said forming process, said velocity boundary conditions are set equal to a function having three variables, including (1) a rate of increase of the diameter of said rotary formed body, (2) said angular velocity for rotation about said axis of rotation of said rotary formed body, and (3) a correction value for traverse velocity of said axis of rotation”, which have not been uncovered in a single teaching, nor would a modification of prior art references be obvious to one of ordinary skill in the art to yield these limitations in the context of the claim. Claim 1 is deemed allowable.

**2-3.** Independent claim 6 is a computer-readable recording medium claim including equivalent method limitations as in the allowable claim 1 and is deemed allowable for the same reason as claim 1.

**2-4.** Independent claim 16 is a system claim including equivalent method limitations as in the allowable claim 1 and is deemed allowable for the same reason as claim 1.

**2-5.** Dependent claims are allowed as they depend upon allowable independent claims.

**3.** Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

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***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Herng-der Day whose telephone number is (571) 272-3777. The Examiner can normally be reached on 9:00 - 17:30.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: (571) 272-2100.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kamini S. Shah can be reached on (571) 272-2279. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Herng-der Day  
October 19, 2005 *H.D.*

*Kamini Shah*  
KAMINI SHAH  
Supervisory PRIMARY EXAMINER  
AV 2128